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Indian Standard

SPECIFICATION FOR HEDGE SHEARS, STRAIGHT-EDGE TYPE

(First Revision)

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SPECIFICATION FOR HEDGE SHEARS, STRAIGHT-EDGE TYPE

(First Revision)

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Indian Standard
SPECIFICATION FOR
HEDGE SHEARS, STRAIGHT-EDGE TYPE
(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 29 September 1978, after the draft finalized by the Horticultural Equipment Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Hedge shears are used for pruning of hedges and twigs. This standard covering the requirements of hedge shears was originally published in 1963. A need was felt to revise this standard to incorporate the latest developments.

0.3 The figure in the standard is meant only as typical illustration of component and should not be considered as suggestive of any standard design.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard specifies material, dimensions and other requirements of hedge shears, straight-edge type.

2. MATERIAL

2.1 Blade — The blade shall be manufactured from high carbon steel, alloy steel or tool steel.

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*Rules for rounding off numerical values (*revised*).

2.1.1 The chemical composition of the high carbon steel shall be as follows:

a) Carbon 0·7 to 0·9 percent;
b) Silicon 0·1 to 0·4 percent;
c) Manganese 0·5 to 1·0 percent;
d) Sulphur 0·05 percent, *Max*; and
e) Phosphorus 0·05 percent, *Max*

2.1.1.1 Some of the typical steels that may be used are: C75, C80 and C85 (*see* IS : 1570-1961[*]).

2.1.2 Alloy steel preferably conforming to Grade 16 NiCr2Mo 20, 37Si2Mn90 or 37Mn2 of IS : 4367-1967[†] should be used.

2.1.3 Tool steel preferably conforming to the grade T 75 or T 85 of IS : 4367-1967[†] should be used.

2.2 Tang — The material used for blade shall also be used for tang. However mild steel (*see* IS: 226-1975[‡]) may also be used.

2.3 Handle — Timber (*see* Appendix D of IS : 620-1975[§]) or PVC (*see* IS : 7328-1974[||]) shall be used.

2.4 Ferrule — Mild steel sheet (*see* IS: 1079-1973[¶]) or tube (*see* IS : 3601-1966[**]) or brass (*see* IS : 410-1967[††]) shall be used.

3. HARDNESS

3.1 The cutting edge of the blades shall have a hardness in range of 45 to 55 HRC (*see* IS : 1586-1968[‡‡]) or equivalent Brinell or Vickers hardness. The hardness shall be tested within a distance of 10 mm from cutting edge.

4. SHAPE

4.1 A typical shape of the hedge shear is given in Fig. 1.

5. DIMENSIONS

5.1 The size of shear shall be 200, 225, 250, 275, 300 or 325 mm. The toterance on declared size shall be ± 5 mm.

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[*] Schedules for wrought steels for general engineering purposes.
[†] Specification for alloy and tool steel forgings for general industrial use.
[‡] Specification for structural steel (standard quality) (*fifth revision*).
[§] Specification for general requirements for wooden tool handles (*second revision*).
[||] Specification for high density polyethylene materials for moulding and extrusion.
[¶] Specification for hot rolled carbon steel sheet and strip (*third revision*).
[**] Specification for steel tubes for mechanical and general engineering purposes.
[††] Specification for rolled brass plate, sheet, strip and foil (*second revision*).
[‡‡] Methods for Rockwell hardness test (B and C scales) for steel (*first revision*).

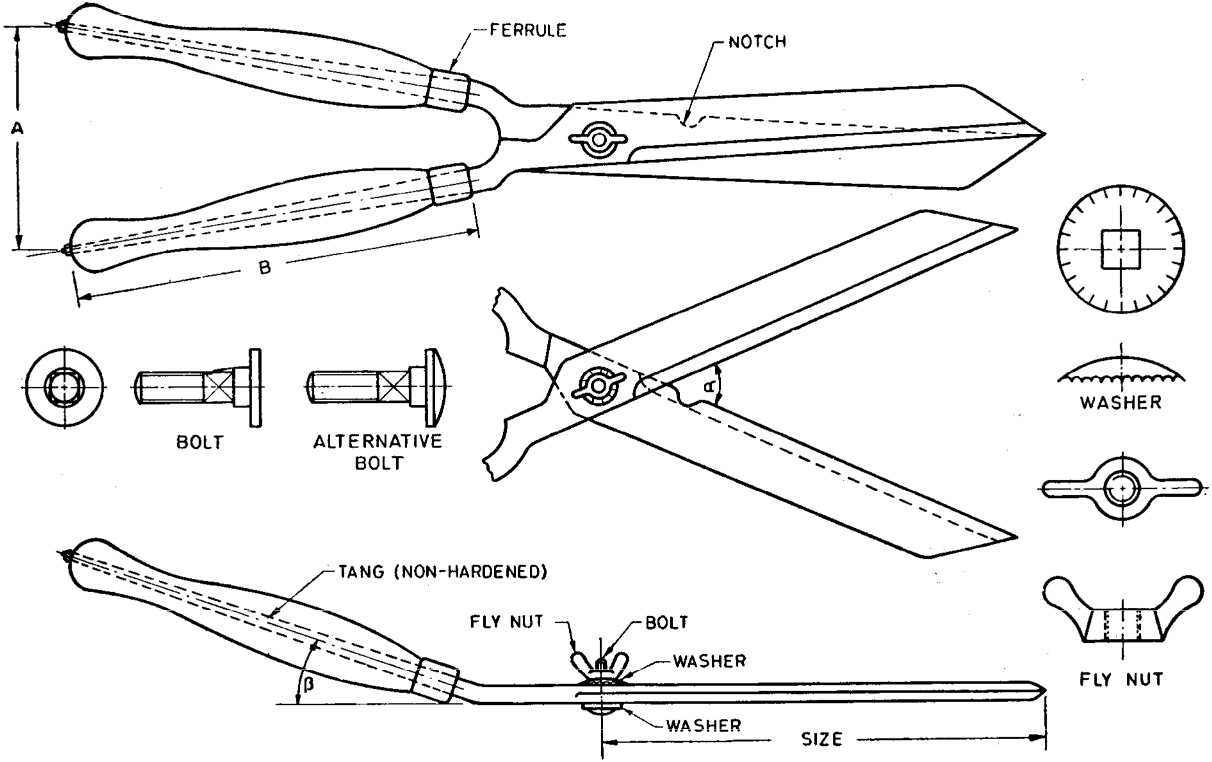

Fig. 1 Hedge Shears Straight-Edge Type Assembly

5.1.1 The size of the shear shall be measured as straight distance between the centre of hinge joint and the tip of the blades in closed position (*see* Fig. 1).

5.2 The minimum thickness of the blade shall be 4·5 mm. The tolerance on the declared thickness shall be ± 10 percent provided the thickness does not fall below the minimum value specified.

5.3 The width of the blade shall be 25 to 40 mm.

5.4 The distance between the centre of tangs or grips at their rear ends with the shear in closed position (*see A* in Fig. 1) shall be 150 to 200 mm.

5.5 The length of the handle including the ferrule (*see B* in Fig. 1) shall be 200 to 300 mm. The diameter of the handle at the smallest cross section shall be in the range of 25 to 40 mm.

5.6 The angle of opening of the blades at the vertex (*see* α in Fig. 1) shall be maximum 95°.

5.7 The angle of lift of handles (*see* β in Fig. 1) shall be 25° to 35°.

5.8 The width and depth of the bevelled notch(s) shall be minimum of 15 and 5 mm respectively.

6. OTHER REQUIREMENTS

6.1 The blade and the tang may be formed from one piece or from separate pieces.

6.2 The shear shall have two blades; one with plain edge and other with serrated edge, or both with serrated or with plain edge.

6.3 One blade shall have a cutting notch or notches adjacent to the hinge joint to shear thick stems.

6.4 The shears shall be substantially joined by means of a bolt with washer and nut in a manner such that there is no excessive looseness, sidewise movement, or binding when shears are opened or closed. The bolt shall be 8 or 10 mm size. The wing nut shall be preferred. Alternatively the nut may be locked semipermanently through three punch marks on the nut threading.

6.5 The tang shall extend to full length of the handle or part of it. In case of partial fitment, the minimum length of tang inside the handle shall be 150 mm. In case it extends to full length, the tang shall be fixed by a bolt or screw with washer.

6.6 The handle shall be provided with ferrule. The minimum thickness of ferrule shall be 1·5 mm. In case of partial fitment of tang in handle, the ferrule shall be attached with tang by rivet or pin. The rivets or pin shall be neatly headed. The diameter of rivet shall be 3 to 6 mm.

6.7 The cutting edge shall be bevelled up to a distance of 10 mm and sharpened ready for use.

6.8 The closing of the shear shall be limited by means of either integral or permanently stops on either the heels or shanks of the blades.

7. WORKMANSHIP AND FINISH

7.1 The shear shall be finished smooth without any objectionable pit marks, cracks, etc.

7.2 The exposed metallic parts shall be coated with oil or grease for prevention of rust or corrosion.

7.3 The wooden handle shall be coated with polish or lacquer.

8. MARKING AND PACKING

8.1 Marking — Each hedge shear shall be marked with the following particulars:

a) Manufacturers' name and recognized trade-mark,

b) Size, and

c) Batch or code number.

8.1.1 Each hedge shear may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

8.2 Packing — The hedge shear shall be packed as agreed to between the purchaser and the supplier.

9. SAMPLING FOR LOT ACCEPTANCE

9.1 Unless otherwise agreed to between the purchaser and the supplier, the sampling and criteria for conformity of shears for lot acceptance shall be done in accordance with **3** of IS : 7201-1974*.

9.1.1 The classification of different requirements of this standard for the purpose of testing for lot acceptance is given below for guidance:

a) *Dimensional and visual requirements* — *See* **4**, **5**, **6**, **7** and **8.1**.

b) *Other than dimensional and visual requirements* — *See* **3**.

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*Method of sampling of agricultural machinery and tractor.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	CONVERSION
Force	newton	N	1 N = 0·101 972 kgf
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s (s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2

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